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L5: Entry 16 of 44

File: USPT

DOCUMENT-IDENTIFIER: US 4119468 A

TITLE: Particulate metallurgical hot topping compositions and method of use

Brief Summary Text (2):

Particulate metallurgical hot topping compositions are used in the casting of metal ingots to provide an insulating cover over the top of an as-cast ingot in order to increase the feeding life of the ingot hot top. Known compositions of this type, for example, are those manufactured and sold in particulate form by Exomet, Incorporated, under the trademarks CARBON-FREE HOT TOP and RED H.T. These compositions are mildly exothermic and react in the presence of molten metal to form a light insulating layer over the ingot. The insulating layer keeps the top of the ingot molten and thereby increases soundness of the finished ingot. These compositions react with the evolution of large quantities of dense smoke obliterating safe walkways and a large portion of the pouring area from the view of cranemen.

Brief Summary Text (5):

Conventional monolithic (pressed and sintered) solid exothermic hot tops are usually made from a particulate material such as disclosed in U.S. Pat. No. 3,144,690, sintered at low temperature (e.g. 200.degree. C or 482.degree. F) to form solid panels such as shown in U.S. Pat. No. 3,183,562 and then when contacted by the molten metal react exothermically to liberate large quantities of heat to keep the top of the ingot molten. The surface temperature of the molten metal is about 300.degree. F (1649.degree. C) at which temperature a particulate composition with conventional binders as exemplified by the above U.S. patents would react exothermically to form an irregular sintered mass that would float on the molten metal rather than form a crust. In order to form a uniform article, such compositions must be sintered at low temperature for a prolonged time. The basic compositions used for molded hot tops and other molded and cured articles are not referred to as hot topping compositions (compounds) by those skilled in the art since the art recognizes that the compositions to be moldable must have a binder.

Brief Summary Text (40):

In use, the molten metal (e.g. steel) is poured into an ingot mold allowing for headroom in the ingot above the molten metal. If a solid hot top is used, the same procedure applies. The headroom is basically a reservoir defined by the ingot hot top walls and molten metal with an open top. This is sometimes referred to as pouring an ingot down 2 inches or 4 inches or the depth depending upon melt shop practice. The topping mixture is placed in the reservoir by bag, shovel, hand, or other convenient means flowing over the surface of molten metal and then reacting to form the crust and sealing against the ingot or hot top walls.

## CLAIMS:

1. A metallurgical hot topping composition that when placed on the exposed molten metal in an ingot mold reacts to form a self-supporting insulating crust and then exhibits secondary burn to prolong the feeding life of the hot top reservoir metal consisting essentially of:

said composition being formulated so that the ratio of FeO + Al.sub.2 O.sub.3 + SiO.sub.2 to Al is between 1.48/1 to 3.85/1.

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Oct 10, 1978

US-PAT-NO: 4119468

DOCUMENT-IDENTIFIER: US 4119468 A

TITLE: Particulate metallurgical hot topping compositions and method of use

DATE-ISSUED: October 10, 1978

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wiley; Donald E.	Conneaut	OH		

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Air Products and Chemicals, Inc.	Allentown	PA			02

APPL-NO: 05/ 434461 [PALM]

DATE FILED: January 18, 1974

## PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATION This application is a continuation-in-part of application Ser. No. 89.026, filed Nov. 12, 1970, now abandoned.

INT-CL: [02] B28B 7/36

US-CL-ISSUED: 106/38.22; 75/96, 106/38.23, 106/38.27, 164/53, 249/197, 249/202

US-CL-CURRENT: 149/43; 106/38.22, 106/38.23, 106/38.27, 164/53, 249/197, 249/202

FIELD-OF-SEARCH: 106/38.2, 106/38.3, 106/38.5R, 106/38.9, 106/38.22, 106/38.27, 106/38.23, 164/53, 249/197, 249/200, 75/96

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>3144690</u>	August 1964	Buckingham	106/38.9
<input type="checkbox"/>	<u>3183562</u>	May 1965	Moore	249/200
<input type="checkbox"/>	<u>3326273</u>	June 1967	Jago et al.	106/38.27

ART-UNIT: 143

PRIMARY-EXAMINER: Hayes; Lorenzo B.

ABSTRACT:

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## Search Results -

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10/009,537

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US Pre-Grant Publication Full-Text Database  
JPO Abstracts Database  
EPO Abstracts Database  
Derwent World Patents Index  
IBM Technical Disclosure Bulletins

Search:

L5 and (252)!.CCLS.

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## Search History

DATE: Monday, July 22, 2002 [Printable Copy](#) [Create Case](#)

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Hit Count   Set Name  
result set

DB=USPT,PGPB; PLUR=YES; OP=OR

<u>L5</u>	L4 and composition.clm.	44	<u>L5</u>
<u>L4</u>	L2 same molten	250	<u>L4</u>
<u>L3</u>	L2 and molten	359	<u>L3</u>
<u>L2</u>	hot adj top	538	<u>L2</u>
<u>L1</u>	ht adj top	3	<u>L1</u>

END OF SEARCH HISTORY